

June 12, 1953

REPORT ON RESEARCH PROJECTS  
for the  
FISCAL YEAR 1952-53

I. Name LEDERBERG, J. Dept. Genetics Proj. No. 52-335

Title of project: Bacterial genetics

II. Personnel: H. L. Byers (part NIH)  
M. L. Morse (part AEC)  
E. R. Lively (to 8/31/52)

III. Statement of other financial support, if any, for this project:

National Institutes of Health \$ 8 500  
Chemical Corps (to terminate 9/53) \$ 4 500 [for '52-53]; A.E.C. [terminated 3/53]  
Rockefeller Foundation \$ 4 500 [for '52-53] \$ 1 250 in 52-53.

IV. Brief statement of specific progress made during the year:

Studies were continued on the mechanism of genetic transfer in bacteria. In *Salmonella*, phage particles were shown to transduce small genetic fragments. This was applied extensively to the synthesis of many *Salmonella* types. In *E. coli*, the physiological conditions required for optimal rates of sexual mating were studied. Some preliminary observations have been made on what may be the cytology of this mating process.

Further evidence has been accumulated for the localization of a provirus at a specific locus of a chromosome in lysogenic *E. coli*. A transduction mechanism has also been found in *E. coli*, so that the chromosomal basis of this process can be verified.

V. Publications that have appeared in print from July 1, 1952, to June 30, 1953:

Lederberg, J., Cavalli, L.L., and Lederberg, E.M., Sex compatibility in *Escherichia coli*.  
*Genetics* 37: 720, 1952 (Nov.)  
Lederberg, E.M., and Lederberg, J., Genetic aspects of lysogenicity in *Escherichia coli*.  
*Genetics* 38:51, 1953 (Jan.)  
Cavalli, L.L., Lederberg, J., and Lederberg, E.M., An infective factor controlling  
sex compatibility in *Bacterium coli*. *Jour. Gen. Microbiol.* 8:89, 1953 (Feb.)

VI. ~~Manuscripts accepted for publication but not yet printed:~~

Zinder, N.D. and Lederberg, J., Genetic exchange in *Salmonella*. *Jour. Bact.*  
64: 679, 1952 (Nov.)  
Lederberg, J., Cell genetics and hereditary symbiosis. *Physiol. Revs.* 32:403, 1952  
(Oct.)

VI. In press: Lederberg, J., Some biological aspects of bacterial genetics.  
*Proc. 2d Nat. Cancer Cong., Cincinnati, 1952, In Press.*

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The pink copy should be returned to the Graduate School Office on or before August 1, 1953. The blue copy is for your file.

In Press, cont'd:

Stocker, B.A.D.S., Zinder, N.D., and Lederberg, J., Transduction of flagellar characters in Salmonella. Jour. Gen. Microbiol., In Press.

Lederberg, J. and Edwards, P.R., Serotypic Recombination in Salmonella. Jour. Immunology, In Press.

Lederberg, J. and Tatum, E.L., Sex in bacteria: genetic studies 1945-1952. A.A.A.S. Symposia, In Press.

Cavalli, L.L., and Lederberg, J., Genetic aspects of chemotherapy. Symposium on chemotherapy, IV Int. Cong. Microbiology, Rome, 1953, In Press.